APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,875	12/22/1999	MANPREET S. KHAIRA	2207/6843	6722

7590   04/09/2003

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EXAMINER
CRAIG, DWIN M

ART UNIT	PAPER NUMBER
2123	3

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No. 09/470,875	Applicant(s) KHAIRA ET AL.
	Examiner Dwin M Craig	Art Unit 2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 December 1999</u> .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-5 and 7-51</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5 and 7-51</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 December 1999</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1-5 and 7-55 have been presented for examination. Claims 1-5 and 7-55 have

been examined and rejected.

Drawings

2.   This application has been filed with informal drawings which are acceptable for

examination purposes only. Formal Drawings will be required when the application is allowed.

The drawings filed on 12-22-99 are acceptable subject to correction of the formalities listed in

the attached "Notice of Draft person's Patent Drawing Review," PTO-948.

Claim Objections

3.   The numbering of claims is not in accordance with 37 CFR 1.126 which requires the

original numbering of the claims to be preserved throughout the prosecution. When claims are

canceled, the remaining claims must not be renumbered. When new claims are presented, they

must be numbered consecutively beginning with the number next following the highest

numbered claims previously presented (whether entered or not). The Examiner objects to the

Applicant's numbering because there is no Claim 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1, 2, 4, 5, 8-10, 13-18, 21, 22, 24-27, 29, 30, 31, 32, 34-43, 45, 46, 48-51, and 53-55** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference.

4.1   As regards independent **Claims 1, 21, 26, 29, 34 and 51** the *Eisenhofer-1* reference discloses a method for distributed simulation **(Col. 7 Lines 15-25)**, at least two simulators **(Figure 2)**, a back plane **(Figure 2 Item 210)**, an interface for the simulators **(Col. 5 Lines 52-67, Col. 6 Lines 1-20)**, fixed configuration back plane **(Col. 5 Lines 5-7)**, exchanging messages **(Col. 8 Lines 42-47)** and data format conversions **(Col. 5 Lines 52-67, Col. 6 Lines 1-20, Col. 12 Lines 34-67, Col. 13 Lines 1-5)**.

The *Eisenhofer-1* reference does not expressly disclose at simulators that represent at least one of a component and a system based on processors and chipsets.

The *Worthington et al.* reference discloses a method for flexible simulation modeling that represent at least one of a component and a system based on processors and chipsets **(Figures 1, 3, 3A, 4, Col. 4 Lines 47-61)**.

It would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because *(motivation to combine)* there has been a long-felt need in the art to provide fully "end-to-end" system models using individual system component models that are truly independent and

that may be seamlessly connected in a building block fashion *(Worthington et al. Col. 1 Lines 45-51)*.

4.2 As regards the limitation of an apparatus in independent **Claims 40 and 45** the *Eisenhofer-1* reference discloses an apparatus **(Figure 3, Col. 6 Lines 46-67, Col. 7 Lines 1-25)**.

4.3 As regards independent **Claims 53-55** the *Eisenhofer-1* reference discloses an articled with a storage medium wherein there is stored instructions for a processor **(Figure 3, Col. 6 Lines 46-67, Col. 7 Lines 1-25)**.

4.4 As regards the limitation of validating a component/ element of a design in independent **Claims 29, 34, 40 and 45** the *Eisenhofer-1* reference does not expressly disclose validation.

The *Worthington et al.* reference discloses validation **(Col. 8 Lines 30-40)**.

It would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because *(motivation to combine)* there has been a long-felt need in the art to provide fully "end-to-end" system models using individual system component models that are truly independent and that may be seamlessly connected in a building block fashion *(Worthington et al. Col. 1 Lines 45-51)*.

4.5 As regards **Claims 2, 22, 31, 38, 42 and 49** the *Eisenhofer-1* reference does not expressly disclose a driver.

The *Worthington et al.* reference discloses a driver **(Figure 1 Item 14b)**.

It would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference

because *(motivation to combine)* there has been a long-felt need in the art to provide fully "end-to-end" system models using individual system component models that are truly independent and that may be seamlessly connected in a building block fashion *(Worthington et al. Col. 1 Lines 45-51).*

4.6   As regards **Claims 4, 24, 32, 39, 43, 50,** the *Eisenhofer-1* reference does not expressly disclose generating specific circuit models, however the reference does discuss the use of models in circuit simulation.

The *Worthington et al.* reference discloses models of components used in circuit simulation **(Figures 1-10, Col. 2 Lines 30-67, Col. 3 Lines 1-8).**

It would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because *(motivation to combine)* there has been a long-felt need in the art to provide fully "end-to-end" system models using individual system component models that are truly independent and that may be seamlessly connected in a building block fashion *(Worthington et al. Col. 1 Lines 45-51).*

4.7   As regards **Claims 5, 25, 27, 30, 35, 41 and 46** the *Eisenhofer-1* reference discloses an integrated circuit **(Col. 1 Lines 30-48).**

4.8   As regards **Claims 8 and 9** the *Eisenhofer-1* reference discloses a global signal used for synchronization and simulators being relaxed based on the current state of that simulator **(Col. 6 Lines 21-45).**

4.9   As regards **Claim 10** the *Eisenhofer-1* reference discloses synchronizing different types of simulators **(Col. 11 Lines 60-67, Col. 12 Lines 1-25).**

4.10   As regards **Claims 13 and 15** the *Eisenhofer-1* reference discloses exchanging

messages to enable simulators using different encoding schemes **(Col. 5 Lines 52-67, Col. 6**

Lines 1-20, Col. 12 Lines 34-67, Col. 13 Lines 1-5).

4.11   As regards **Claims 14, 16 and 17** the *Eisenhofer-1* reference discloses resolving

conflicts based on boundary conditions between different simulators **(Figure 7, Col. 5 Lines 19-**

25, Col. 6 Lines 21-45, Col. 12 Lines 7-40).

4.12   As regards **Claim 18** the *Eisenhofer-1* reference discloses high-level languages

(Col. 7 Lines 27-51).

4.13   As regards **Claims 37 and 48** the *Eisenhofer-1* reference does not expressly

discloses a message from a second device.

The *Worthington et al.* reference discloses getting a test message from a second device

(Figures 3, 4, 8, Col. 2 Lines 30-44).

It would have been obvious, to one of ordinary skill in the art, at the time of the

invention, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference

because *(motivation to combine)* there has been a long-felt need in the art to provide fully "end-

to-end" system models using individual system component models that are truly independent and

that may be seamlessly connected in a building block fashion *(Worthington et al. Col. 1 Lines*

45-51).

5.   Claims **3, 7, 20, 23, 28, 33, 36, 44, 47,** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the

Eisenhofer–1 reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view

of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference

and in further view of **Ly et al. U.S. Patent 6,175,946.**

5.1   As regards independent **Claims 1, 21, 26, 29, and 34** see the rejection in

paragraph **4.1.**

5.2   As regards independent **Claims 40 and 45** see the rejection in paragraph **4.2.**

5.3   As regards **Claims 3, 20, 23, 28, 33, 36, 44, 47** the *Eisenhofer–1* reference does

not expressly disclose a checker.

The *Ly et al.* reference discloses a checker **(Figure 1A, 5, 6, Col. 2 Lines 36-42).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention,

to have modified the *Eisenhofer–1* reference with the *Ly et al.* reference because *(motivation to*

combine) diagnosing errors flagged by automatically generated checkers is much easier than

diagnosing errors flagged by end-to-end tests, *(Ly et al. Col. 3 Lines 53-56).*

5.4   As regards **Claim 7** the *Eisenhofer–1* reference does not expressly disclose a tree.

The *Ly et al.* reference discloses a process control tree **(Figure 3A).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention,

to have modified the *Eisenhofer–1* reference with the *Ly et al.* reference because *(motivation to*

combine) diagnosing errors flagged by automatically generated checkers is much easier than

diagnosing errors flagged by end-to-end tests, *(Ly et al. Col. 3 Lines 53-56).*

6.   **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Eisenhofer et al. U.S. Patent 6,108,494 hereafter referred to as the *Eisenhofer–1* reference in

view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S.**

Patent 6,339,836 hereafter referred to as the *Eisenhofer-2* reference and in further view of

Dearth et al. U.S. Patent 5,881,267.

     6.1   As regards independent **Claim 1** see the rejection in paragraph **4.1.**

     6.2   As regards **Claims 11 and 12** the *Eisenhofer–1* reference does not expressly

disclose executing a remote procedure call.

     The *Dearth et al.* reference discloses executing a remote procedure call **(Col. 10 Lines**

45-56).

     It would have been obvious, at the time of the invention, to one of ordinary skill in the art

to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference because *(motivation*

to combine) the *Dearth et al.* reference discloses a method of improving the accuracy of a

distributed simulation *(Dearth et al. Col. 3 Lines 30-35).*

7.   **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al.**

U.S. Patent 6,108,494 hereafter referred to as the *Eisenhofer–1* reference in view of

Worthington et al. U.S. Patent 5,881,270 and in further view of **Eisenhofer et al. U.S. Patent**

6,339,836 hereafter referred to as the *Eisenhofer-2* reference and in further view of **Dearth et al.**

U.S. Patent 5,732,247.

     7.1   As regards independent **Claim 1** see the rejection in paragraph **4.1** above.

     7.2   As regards **Claim 19** the *Eisenhofer–1* reference does not expressly disclose

handwritten test for all simulators.

     7.3   The *Dearth et al.* reference discloses test written in a high-level language **(Figure**

1).

It would have been obvious to one of ordinary skill in the art, at the time of the invention

to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference because *(motivation*

to combine) the *Dearth et al.* reference discloses an improved method to write test routines for

hardware simulation *(Dearth et al. Col. 2 Lines 14-20)*.

8. **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Eisenhofer et al. U.S. Patent 6,108,494 hereafter referred to as the *Eisenhofer–1* reference in

view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S.**

Patent 6,339,836 hereafter referred to as the *Eisenhofer-2* reference and in further view of

Dearth et al. U.S. Patent 5,732,247.

    8.1   As regards independent **Claim 1** see the rejection in paragraph **4.1.**

    8.2   As regards **Claims 11 and 12** the *Eisenhofer–1* reference does not expressly

disclose executing a remote procedure call.

The *Dearth et al.* reference discloses executing a remote procedure call that is deadlock

safe **(Figures 4, 4A, 4B, 4C, 4D).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention

to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference because *(motivation*

to combine) the *Dearth et al.* reference discloses an improved method to write test routines for

hardware simulation *(Dearth et al. Col. 2 Lines 14-20)*.

Conclusion

9.   The Examiner asserts that the following references are of interest in regards to

Applicant's claimed limitations.

9.1 The Examiner asserts that the **Wang et al. U.S. patent 6,484,281** discloses simulation of a North Bridge and South Bridge chip set.

9.2 The Examiner asserts that the **Dearth U.S. Patent 5,907,695** reference discloses deadlock avoidance mechanism for distributed simulation.
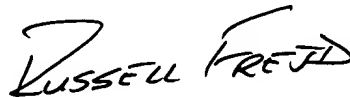
9.3 The Examiner asserts that the **Hollander U.S. Patent 6,182,258** reference discloses test generation during circuit design.

9.4 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M Craig whose telephone number is 703 305-7150. The examiner can normally be reached on 9:00 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

DMC
April 7, 2003

RUSSELL FREJD
PRIMARY EXAMINER